AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) An apparatus for cleaning a surface within a vessel having a vessel wall separating a vessel exterior from a vessel interior and having a wall aperture, the apparatus comprising:

a source of fuel and oxidizer;

an igniter for initiating a reaction of the fuel and oxidizer; [[and]]

an elongate conduit having a first end and a second end, comprising a plurality of segments secured end-to-end, and positioned to direct a gas flow of the reacted or reacting fuel and oxidizer through the wall aperture and discharge from the second end; and ~~comprising a plurality of segments secured end-to-end against relative movement~~

damping means for absorbing reaction forces associated with said reacted fuel and oxidizer and said discharge.

2. (Original) The apparatus of claim 1 wherein:

at least three of the conduit segments have lengths along a gas flowpath 1-3m and characteristic internal cross-sectional areas of 0.006-0.3m^2.

3. (Original) The apparatus of claim 1 wherein:

at least three of the segments each comprise:

a tubular body having first and second ends; and

first and second attachment flanges proximate the first and second ends, respectively.

4. (Original) The apparatus of claim 1 wherein:

a nozzle assembly extends at least partially through the vessel wall.

5. (Original) The apparatus of claim 1 wherein:

at least one of the segments is an elbow

6. (Original) The apparatus of claim 1 wherein the conduit consists essentially of three portions:

an essentially straight first portion;

an essentially straight second portion upstream of the first portion; and

a third non-straight portion between the first and second portions.

7. (Currently amended) The apparatus of claim 1 [[6]] wherein the conduit comprises at least three portions:

a first portion;

a second portion upstream of the first portion; and

a third portion between the first and second portions;

wherein the ~~second and third~~ first and second portions have an essentially uniform ~~similar~~ internal ~~cross-sections~~ cross-section along their respective lengths; and

wherein and the [[first]] third portion includes:

a downstream portion having an internal cross-section essentially similar to the internal cross-section ~~cross-sections~~ of the first portion ~~second and third portions~~;

an upstream portion having an internal cross-section essentially similar to the internal cross-section of the second portion and smaller than the internal cross-section of the downstream portion; and

a transition portion having an internal cross-section that transitions from essentially similar to the internal cross-section of the upstream portion to essentially similar to the internal cross-section of the downstream portion.

8. (Original) The apparatus of claim 6 wherein the first and second portions are parallel and offset.

9. (Original) The apparatus of claim 6 wherein the first and second portions are oriented at an angle of 20°-160° to each other.

Please cancel claims 10-15.

16. (Previously presented) The apparatus of claim 3 wherein:
a nozzle assembly extends at least partially through the vessel wall.

17. (Previously presented) The apparatus of claim 16 wherein:
at least one of the segments is an elbow.

18. (Previously presented) The apparatus of claim 3 wherein:
at least one of the segments is an elbow.

19. (Previously presented) The apparatus of claim 1 wherein:
the conduit includes first and second portions parallel and offset.

20. (Previously presented) The apparatus of claim 3 wherein:
a first of the segments is parallel and offset from a second of the segments.

21. (New) The apparatus of claim 1 wherein:
said damping means is a reaction strut disposed in series with at least one coil reaction spring, coupled at one end to a mated flange pair of said segments and coupled at the opposite end to a rigid structure.

22. (New) The apparatus of claim 21 wherein:
said structure is said vessel wall.

23. (New) An apparatus for cleaning a surface within a vessel having a vessel wall separating a vessel exterior from a vessel interior and having a wall aperture, the apparatus comprising:
a source of fuel and oxidizer;
an igniter for initiating a reaction of the fuel and oxidizer;
an elongate conduit having a first end and a second end, comprising a plurality of segments secured end-to-end, and positioned to direct a gas flow of

the reacted or reacting fuel and oxidizer through the wall aperture and discharge from the second end; and

wherein said conduit comprises at least three portions:

a first portion;

a second portion upstream of the first portion; and

a third portion between the first and second portions;

wherein the first and second portions have an essentially uniform internal cross-section along their respective lengths; and

wherein and the third portion includes:

a downstream portion having an internal cross-section essentially similar to the internal cross-section of the first portion;

an upstream portion having an internal cross-section essentially similar to the internal cross-section of the second portion and smaller than the internal cross-section of the downstream portion; and

a transition portion having an internal cross-section that transitions from essentially similar to the internal cross-section of the upstream portion to essentially similar to the internal cross-section of the downstream portion.

24. (New) The apparatus of claim 23 wherein:

at least three of the conduit segments have lengths along a gas flowpath 1-3m and characteristic internal corss-sectional areas of 0.006-0.3m^2.

25. (New) The apparatus of claim 23 wherein each of at least three of the segments comprises:

a tubular body having first and second ends; and

first and second attachment flanges proximate the first and second ends, respectively.

26. (New) The apparatus of claim 21 wherein said mated flange pair is a last mated flange pair.